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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,626	01/14/2002	Anna Pelagotti	NL010022	4805

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EXAMINER	
WONG, ALLEN C	
ART UNIT	**PAPER NUMBER**
2613	

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/046,626	PELAGOTTI ET AL.	
	Examiner	Art Unit	
	Allen Wong	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 January 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,6 and 7* is/are rejected.

7)☒ Claim(s) *2,3 and 5* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 1/24/05 have been fully read and considered but they are not persuasive.

Regarding lines 17-21 on page 2 and lines 16-20 on page 3 of applicant's remarks, applicant argues that Nakajima neither discloses or suggests "generating interpolated results as a function of these motion vectors", and "generating an interpolated image by calculating, on the basis of these weights, a weighted average of the interpolated results". The examiner respectfully disagrees. In fig.20, Nakajima discloses the inputted motion vectors V1...Vn to element 43, the selector, is done to process or interpolate the results of the motion vectors V1... Vn obtained via the motion vector estimators 31... 3n. Finally, at the end of the process or interpolation, whereby element 43 considers the information from elements 41 and 42 that incorporates the data of the weights E1... En, the best processed or interpolated results are outputted from element 43. Thus, Nakajima discloses "generating interpolated results as a function of these motion vectors".

Also, in Nakajima's fig.20, the results that are outputted from element 43, clearly are obtained by incorporating the weights E1 ... En, ie. luminous intensity, from elements 31 ... 3n. The weights E1 ... En are inputted to elements 41 and 42 where the data is processed or interpolated to generate interpolated data to send to element 43 that takes the weighted data E1... En into consideration, and that element 43 yields the best processed or interpolated results for the generation of interpolated luminous

intensity, ie. weighted data, of a group of pixels for an interpolated image. Weighted data E1 ... En are obtained from interpolated luminous intensity or the luminance differences to determine the differences in motion in order to properly determine the best representative luminous intensity of the image data. Thus, Nakajima teaches "generating an interpolated image by calculating, on the basis of these weights, a weighted average of the interpolated results".

Regarding lines 1-2 on page 4 of applicant's remarks, applicant argues that there is no disclosure in Nakajima of interpolating luminance based on motion vectors. The examiner respectfully disagrees. As discussed above and in the rejection below, the interpolation of luminance is that the weighted data E1... En is obtained from the difference between the input image and the reference image, and that the difference data is clearly luminance related data because the determination of motion is through the evaluation, process or the interpolation of luminous differences between the input image and the reference image to produce the interpolating luminance difference data based on the motion vectors. Nakajima's fig.20 does interpolate luminance based on motion vectors. Thus, Nakajima discloses interpolating luminance based on motion vectors.

The rejection to claims 1, 4, 6 and 7 is maintained.

Dependent claims 2, 3 and 5 are still objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4, 6 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakajima (5,412,435).

Regarding claims 1 and 6, Nakajima discloses a device and method of motion-compensated interpolation of a data-signal, which data-signal comprises successive images wherein each image comprises groups of pixels, the method comprising:

generating motion vectors, each motion vector corresponding to a group of pixels of one image, between a group of pixels of said one image and a second group of pixels of another image in the data-signal (fig.20, note the motion vectors V1...Vn are the generated motion vectors);

generating interpolated results as a function of these motion vectors (fig.20, note motion vectors V1...Vn are then inputted to element 43 outputs the best interpolated results, along with the results from element 41 and 42 that incorporates the weights E1 ... En into element 43);

estimating the reliability of each motion vector corresponding to a particular group of pixels (fig.20, note 31 ... 3n are the estimators for estimating reliability of the particular group of pixels);

calculating weights as a function of the reliability of the motion vectors (fig.20, note the E1...En are the weights that represent the reliability of the motion vectors); and

generating an interpolated luminous intensity of a group of pixels for an interpolated image by calculating, on the basis of these weights, a weighted average of the interpolated results (fig.20, element 41 and 42 obtains the weights E1 ... En from elements 31 ... 3n and process these weights E1 ... En to generate an interpolated results that would apply to element 43 for selection and output of the best interpolated results for the generation of interpolated luminous intensity of a group of pixels for an interpolated image).

Regarding claim 4, Nakajima discloses wherein the generation of interpolated luminous intensities according to the invention is only performed in those parts of the images of the data-signal where edges in the motion vector field of the images are located (fig.20, element 41 and 42 obtains the weights E1 ... En from elements 31 ... 3n and process these weights E1 ... En to generate an interpolated results that would apply to element 43 for selection and output of the best interpolated results for the generation of interpolated luminous intensity of a group of pixels for an interpolated image).

Regarding claim 7, Nakajima discloses a picture signal display apparatus, comprising:

means for receiving a data-signal, which data-signal comprises successive images wherein each image comprises groups of pixels (fig.20, note input data 10 and

reference data 11 are the received data signals of the successive images, wherein image data comprises groups of pixels);

a device for motion-compensated interpolation of said data-signal, as claimed in claim 6 (fig.1, element 79);

means for generating at least one interpolated image on the basis of said interpolated luminous intensities (fig.20, element 41 and 42 obtains the weights E1 ... En from elements 31 ... 3n and process these weights E1 ... En to generate an interpolated results that would apply to element 43 for selection and output of the best interpolated results for the generation of interpolated luminous intensity of a group of pixels for an interpolated image); and

means for displaying the at least one interpolated image (fig.20, note output of element 43 goes to a display for displaying at least one interpolated image).

Allowable Subject Matter

3. Claims 2, 3 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not disclose the specific limitations of claim 2 because of the level of details. Also, the prior art does not disclose the specifics of claim 5.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen Wong whose telephone number is (571) 272-7341. The examiner can normally be reached on Mondays to Thursdays from 8am-6pm Flextime.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Kelley can be reached on (571) 272-7331. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Allen Wong
Primary Examiner
Art Unit 2613

AW
5/17/05